The Relation of Birds And Forests.

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THE BIRDS AND THE FORESTS.

In the economy of nature the feathered branch of the animal kingdom and the major portion of the vegetable world are ever one and inseparable; one was created for the other; the life and well being of each depends upon the ability of its mate to protect it from insiduous foes, tireless in their efforts to destroy first one and then the other.

While we are aware that upon the arid plains a few birds exist and that some are born in the frozen, treeless, arctic wastes and follow the billows of the sea in search of food, apparently as free from attachment to forests as are the fish upon which they daily feed, yet upon general principles, and in general terms, forests are as necessary to the well being of birds, as are the birds indispensable for forest preservation.

I propound a mathematical proposition which is capable of conclusive demonstration. Given an old field, a worm fence and a bevy of birds: the invariable result will be a hedge row of trees and shrubs, bearing fruits and nuts, edible to the winged tribes of the locality.

The birds, creators of the forests, become also its protectors, and as a sequence their existence is maintained by the fruits of their own labors.

THE BIRTH OF A FOREST.

Nature and man have different methods of forest planting. Nature is deliberate, man always in haste. Nature begins with the seed, man demands a tree already grown to start with, the larger the tree the better. Nature designs variety, all sorts of trees mingled together, some of economic worth, many being valueless for commercial uses.

We view a forest: A hurricane sweeps through the wood leveling the timber by a single blast: miles of territory are cleared of all forest growths.

Time passes: The dead trunks feed the fire which completes this work of destruction.

Nature abhors a barren waste and in time begins the work of restoration. Birds fly across the treeless plain bearing food for themselves and their young and deposit here and there such seeds as compose their food. Each stump serves as a perch for one after another of these songsters; every rock and crag make favorite stopping places about which numerous seeds are sown.

Then squirrels come with their store of nuts for winter use, selecting choice spots for store-houses which become well filled as these graceful creatures ply often from yonder nut trees to their hiding places.

The wind blows briskly, and thickly fly the downy thistle, the cottony seeds of the willow and populus families; whirling with rapidity come the heavier winged seeds of liriodendron, ashes and maples, which alighting here and there, bury their heads neath the soft mud of the water soaked soil; further on the lighter seeds of elm are wafted, strewing the ground as with snow.

Seeds of herbaceous plants are scattered hither and thither, as the winds and birds gather them up from the verdant spots, to be strewn where there are none. Gently the falling leaves from the adjoining forests, spread a light cover hiding the scattered seeds and affording protection from the elements. Soon the snowflakes fly thick and fast; a mantle covers

the land. As the surface is melted by the sun and frozen when night comes on, the snow crust forms an ideal play ground for the wind, which shattering the seeds from cones of hemlock, pine and spruce, drives them fiercely over the snow until they are caught by some obstacle.

Spring comes, with rains; the rushing waters overflow their banks, picking up the twigs with clinging seeds, bear them further down the stream, and spreading over the treeless wastes deposit them to sink into the yielding soil. With the warm, life giving sunshine of spring the seeds thrust downward their rootlets while upward reaches a bud, when two tiny leaves appear as harbingers of spring.

And thus a forest is born. Not in a day, or a year, for nature takes her own time and methods to accomplish her objects, yet in due time a natural forest covers the spot which accident or design had made barren. Here are beech, ash and maple, there a clump of elms, a walnut and hickory alternating with blackberry briars and elder, hemlock with pine; trees of mammoth proportions and shrubs of low degree; ginseng, violet and twining grape strive for space to spread their roots and display their peculiar attractions.

Yonder chestnut will afford abundant nuts for boys and squirrels; these hackberries, cherries, grapes and elderberries will feed the birds which planted them; that oak may become a gnarled monarch among whose branches birds will twitter their songs of love, build their nests in safety and feed upon its countless acorns, which, as if to acknowledge its dependence upon the birds and small animals, it supplies in such abundance.

Certain birds plant nuts and acorns with systematic regularity, burying them neath the surface, one in a place, expecting ere long to find its food, either from an enclosed egg which will in time become a fat luscious worm, or else the meat of the acorn.

In Arizona the Blue Jays gather the pine nuts and bury them singly at a depth of an inch or more, in the arid sands. Here they are preserved for months, or until the snow has fallen and melted, moistening the seeds. In this manner the pinon is planted.

The wild cherry but for its tasty, juicy berries, as also the hackberry, would soon become extinct or at least confined in narrow limits, but for the birds. These seeds have no wings to be borne by the winds; they do not readily float upon the stream; they would simply drop to tho ground and spring up in thickets directly beneath the parent tree. But when devoured by birds they are distributed far and wide, the seedlings taking root wherever a tree or rock or fence permits a bird to perch. Thus they are perpetuated and extended to various portions of the globe.

The aromatic seeds of the juniper or cedar, will only germinate under conditions of heat and moisture such as are found in the crop of fowls; the shell being too hard for the enclosed germ to open; hence would fall to the ground and perish for want of moisture but for the birds.

The wild apple, pear and pulpy fruits are similarly transferred to distant points, thus ensuring the perpetual propagation of such trees

The beech with its savory nuts, as also chestnuts, chinquapin and other small nuts are borne to hiding places for food by birds and squirrels, while an ample share find their way to the ground, forming new forests.

The Cross-bill with its peculiar mandibles, opens the cones of pine, extracting the seeds, of which it is fond, and distributes many in flight.

Birds often practice the art of grafting. The mistletoe of Christmas tide, living as a parasite upon the branches of large trees, has clusters of small white berries which contain the seed. These are transferred from branch to branch by adhering to the bill; the bird pecks into the bark to remove the seed which thus becomes engrafted into the tree.

Are the birds disturbed in the wood? So also the forest is constantly harassed by enemies which menace its destruction.

Age and decrepitude are common to trees as to animals; their existence terminate in decay. Were it not for nature's army of birds, aided by their

allies the squirrels, many sorts of trees and plants would become extinct.

Boring insects penetrate the bark and wood, existing upon the sap of growing trees, and unless held in check by hungry birds, multiply rapidly and eventually destroy the forest.

Destructive bark beetles become so numerous as to completely girdle large numbers of pine trees. They live upon the cambium which forms the connecting tissues of bark and wood; their burrows encircle the trees and prevent the sap from ascending to support the foliage which withers and dies.

Woodpeckers whose instinct excels the marvelous X rays, discover the beetle beneath several inches of overlying bark and boring through thrusts in his long tongue drawing out beetles and larvae.

In an official report, made to the commissioner of the Land office, of my visit to the Black Hill forests, I stated that in one tree 8 inches in diameter, we counted and estimated 10,000 beetles and larvae. The bark came off in sections, having been entirely separated from the wood by the insects. There were no woodpeckers, and few other birds, while one third the entire forest was dead.

Aphides suck the juices from leaves and tender stems; a horde of worms infest the buds, devouring the vital organs of trees, birds are always on the alert; hungry they awake at early dawn to breakfast upon these enemies of the forest Impelled by hunger they continue their labors all the day gathering in the flies, mosquitoes, bugs and worms thus keeping them in subjection.

One batallion hovers around the Conifers in search of beetles; other scouts seek those enemies which curl the leaves and feed upon the juices; a regiment is kept on special service as snake and vermin destroyers; a large brigade is on duty watching for mice in the open fields by night, returning to the forest during the day. In this way owls and hawks earn that living which human kind denies them, but shoot upon all occasions.

In return the forest affords shelter for the birds; their nests are built among the branches, hidden by leafy canopies from the intrusion of numerous enemies and sheltered from storms.

It is natural for all animal kind to seek seclusion at times; nesting places are sought safe from view; only in the thick woods can perfect security be found. Here insects abound, berries, fruits, nuts and oily seeds are in profusion: happy is their lot. Small birds without the forest have little chance for their lives, where animals of the cat tribe or birds of prey have every advantage.

With the disappearance of the forests bird food is insufficient; they are driven to the fields and slaughtered. The balance in nature being destroyed insects increase immoderately and are driven to feed upon orchard and domestic trees in our gardens. So additional burdens are placed upon the husbandman who unwittingly contributes to his own misfortunes.

Fifty years ago the San Jose scale, codling moth, woolly aphis, plum curculio and a host of pests now so common, were not known, or gave so little trouble as not to attract attention while fruits of all kinds were abundant where there were trees.

Surely no one can imagine that these pests were created during the past half century; not all of them were imported from countries which had centuries ago cleared away their forests. No! they were intended to be kept in subjection by nature's laws, which invariably preserves a balance.

Destruction of forests reduces the number of birds and quite naturally insects multiply as a result.

Protect the birds; increase the forests, and insect pests will gradually cease their annoyance.

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